Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A system for performing electrical impedance tomography comprising:

a housing having a longitudinal axis;

a first set of electrodes positioned in a first plane, the first plane intersecting the longitudinal axis;

a second set of electrodes positioned in a second plane, the second plane being different from the first plane and intersecting the longitudinal axis; and

a third set of electrodes positioned in a third plane, the third plane intersecting the longitudinal axis between the first and second planes, and being distinct from the first plane and the second plane,

wherein the third set of electrodes is rotatable around ~~an~~ the longitudinal axis relative to the first set of electrodes and the second set of electrodes.

2. (Original) The system of claim 1, further comprising a current source configured to inject current between at least one electrode of the first set of electrodes and at least one electrode of the second set of electrodes.

3. (Original) The system of claim 2, further comprising one or more switches that are configured to selectively connect each one of the electrodes of the first set of electrodes to each one of the electrodes of the second set of electrodes.

4. (Original) The system of claim 3, further comprising a processor configured to control the switches.

5. (Original) The system of claim 1, further comprising a current source configured to inject current between a first electrode of the third set of electrodes and a second electrode of the third set of electrodes.

6. (Original) The system of claim 5, further comprising one or more switches that are configured to selectively connect the electrodes of the third set of electrodes to the other electrodes of the third set of electrodes.

7. (Original) The system of claim 6, further comprising a processor configured to control the switches.

8. (Original) The system of claim 1, further comprising a voltage measurement device configured to measure voltage between a first electrode of the third set of electrodes and a second electrode of the third set of electrodes.

9. (Original) The system of claim 8, further comprising one or more switches that are configured to selectively connect the electrodes of the third set of electrodes and the other electrodes of the third set of electrodes to the voltage measurement device.

10. (Original) The system of claim 9, further comprising a processor configured to control the switches.

11. (Original) The system of claim 8, wherein the voltage measurement device is an amplifier.

12. (Original) The system of claim 1, wherein the third set of electrodes is supported by an electrode supporting unit.

13. (Currently Amended) The system of claim 12, wherein the electrode supporting unit includes a first biasing element for biasing the electrodes radially inward when a measurement is to be taken and a second biasing element for biasing the electrodes radially outward when the electrode supporting unit is to be moved or rotated.

14. (Original) The system of claim 13, wherein the electrode includes a storage container for conductive gel, and the electrode is configured such that gel stored in the storage container is expelled when the electrode is biased radially inward.

15. (Original) The system of claim 8, further comprising a processor configured to process the voltage measurements taken by the voltage measurement device so as to generate a current density distribution in the third plane.

16. (Original) The system of claim 15, wherein the processor is further configured to generate an image corresponding to the current density distribution in the third plane.

17. (Original) The system of claim 1, wherein the first, second and third sets of electrodes are mounted on upper and lower portions of an imaging device, the upper and lower portions being separable so as to enable a patient body part to be placed between the upper and lower portions.

18. (Original) The system of claim 2, wherein the current is a multi-frequency current.

19. (Original) The system of claim 15, wherein the third set of electrodes is moveable in an axial direction between the first and second planes to a fourth plane.

20. (Original) The system of claim 19, wherein the processor is further configured to process the voltage measurements taken by the voltage measurement device so as to generate a current density distribution in the fourth plane.

21. (Original) The system of claim 20, wherein the processor is further configured to generate a three-dimensional image corresponding to the current density distribution between the first and second planes.

22. (Original) The system of claim 20, wherein the voltage measurement device is configured to measure voltage using a signal synchronized with the R wave of an electrocardiogram.

23. (Previously Presented) The system of claim 1, wherein the housing further comprises an electrode supporting unit configured to support the third set of electrodes.

24. (Previously Presented) The system of claim 1, wherein the third set of electrodes is moveable along the longitudinal axis in an axial direction between the first plane and the second plane.

25. (Previously Presented) The system of claim 1, wherein the first set of electrodes and the second set of electrodes are disposed within the housing, the housing including an opening configured to receive a body part wherein the body part intersects the first plane, the second plane and the third plane when placed within the opening and the third set of electrodes is rotatable around the body part.

26. (Previously Presented) The system of claim 25, wherein the body part is one of a leg, an arm and a calf.

27. (Previously Presented) The system of claim 13, wherein the first biasing element is a spring.

28. (Previously Presented) The system of claim 13, wherein the second biasing element is a balloon.

29. (New) The system of claim 13, wherein the electrode supporting unit comprises an inner ring and an outer ring, and the first biasing element and second biasing element are located between the inner ring and the outer ring.